**Ideal Lesson**  
  
**Title:** What Heats the Earth?  
  
**Goal/Objective:**  
  
Students will be able to analyze and create the components of the greenhouse effect, such as infrared rays, radiation, and absorption, and predict the effect they have on the warming of the Earth.  
  
**Lesson:**

To begin this lesson, I will ask students what they think warms the Earth enough so that at night we do not freeze. At this point, if students know that the sun is the supplying the planet with its warmth, I will move on to this question: Why is it that the Earth has enough energy to stay warm over night, when the sun is no longer present? If the students’ answers do not involve the greenhouse effect, I will introduce the term at this time. If the greenhouse effect is answered by the students, I will further their understanding of what the greenhouse effect is and does by using the computers in the classroom to research the greenhouse effect.

To introduce what the students will be completing in this lesson, I will ask the students to compile a list of the board of what they think are other examples of the greenhouse effect that is taking place in the Earth’s atmosphere. Some examples could include: greenhouses for plants, cars, or houses with rooms that contain an abundance of windows. The students can then use this list to help them create the assignment. The students will then use the classroom computers to further research why the greenhouse effect takes place. The research will be used for them to design their own greenhouse while working in groups. The students will have access to materials that they can obtain at their homes or in the classroom. This assignment will be completed over a two day period. The first day, today, will be the students’ research and planning time. They will be allowed to search the classroom for materials they could use to build their greenhouses. Then, they have the opportunity to collect other materials they may need from home. The next day will be when students actually construct their greenhouses. Once the greenhouses are constructed, they will be placed under lamps to test the effectiveness. Students will record the original temperature and then the temperatures at an hourly interval. The students will then create a graph using Excel to track the temperatures; time of day on one axis and temperature on the other. As a conclusion, each student will write a one paragraph summary that will include their findings and an explanation.

As a formative assessment, the students will use the time they were given research greenhouses to form a full understanding of the topic. This is important to have students complete before the start of constructing their own greenhouse, otherwise, students will be constructing a non-functional greenhouse. To show their understanding, each student will submit a one paragraph summary of what a greenhouse does, and how this relates to the warming of Earth. The summative of this lesson is the groups’ charts of summaries of the created greenhouses. A rubric will be given to the students to follow when completing this assignment. The constructed greenhouse will be graded as a whole for the group, while the charts and summaries will be an individual grade for each student.